

microfabricated elements, said elements including a first reagent chamber for containment of a first one of said reagents, and a means for manipulation of a parameter of said reaction] at least one chemical reaction, comprising:

a) an array of chambers for containment of the reaction including:

at least one chamber for preparing a sample

for use in said reactions; at least one chamber

for adding or removing reagents involved in said

reactions;

at least one channel interconnecting said chambers;

- b) a temperature controller of said reaction; and
- c) a product analysis chamber coupled to and adapted to perform analysis of said reaction.

Please cancel claims 2-92.

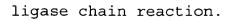
Please add the following new claims:

- --93. The instrument of claim 1, wherein said means for analysis is selected from the group consisting of: sequencing of target species, DNA fingerprinting, physical mapping of target species, DNA library analysis, electrochemical detection, and hybridization detection.
- 94. The instrument of claim 1, wherein said sample is selected from the group consisting of: intact cells, fixed cells, lysed



cells, microorganisms, and tissue.

- 95. The instrument of claim 94, wherein sample preparation yields a specific nucleic acid target molecule.
- 96. The instrument of claim 1, wherein said sample preparation includes sorting specific cell types.
- 97. The instrument of claim 1, wherein said chambers are constructed on a single substrate.
- 98. The instrument of claim 1, wherein said reaction is controlled at a constant temperature.
- 99. The instrument of daim 98, wherein said reaction is in vitro transcription.
- 100. The instrument of claim 1, wherein said reaction is controlled by thermal cycling.
- 101. The instrument of claim 100, wherein said reaction is a chain reaction.
- 102. The instrument of claim 101, wherein said reaction is a polymerase chair reaction.
- 103. The instrument of claim 101, wherein said reaction is a



- 104. An instrument for controlling at least one chemical reaction, comprising:
 - a) an array of chambers for containment of the reaction including:

at least one chamber for preparing a sample for use in said reactions;

at least one chamber for adding or removing reagents involved in said reactions;

at least one channel interconnecting said chambers;

a transferring mechanism coupled to said chambers by way of said channel;

- b) a temperature controller coupled to said
 instrument;
- c) at least one chamber for analysis of products of said at least one chemical reaction.
- 105. The instrument of claim 104, wherein said means for analysis is selected from the group consisting of: sequencing of target species, DNA fingerprinting, physical mapping of target species, DNA library analysis, electrochemical detection, and hybridization detection.
- 106. The instrument of claim 104 in which said means for analysis utilizes a predetermined array of oligonucleotides.

- 107. The instrument of claim 106 in which said array in used in hybridization techniques.
- 108. The instrument of claim 104, wherein said means for analysis includes purification of said reaction products.
- 109. The instrument of claim 108, wherein said purification is performed by electrophoresis.
- 110. The instrument of claim 108, wherein said purification is performed by chromatography.
- 111. The instrument of claim 104, wherein said sample is selected from the group consisting of: intact cells, fixed cells, microorganisms, and tissue.
- 112. The instrument of claim 111, wherein sample preparation yields a specific nucleic acid target molecule.
- 113. The instrument of claim 104, wherein said sample preparation includes sorting specific cell types.
- 114. The instrument of claim 104, wherein said chambers are constructed on a single substrate.
- 115. The instrument of claim 104, wherein said reaction is controlled at a constant temperature.